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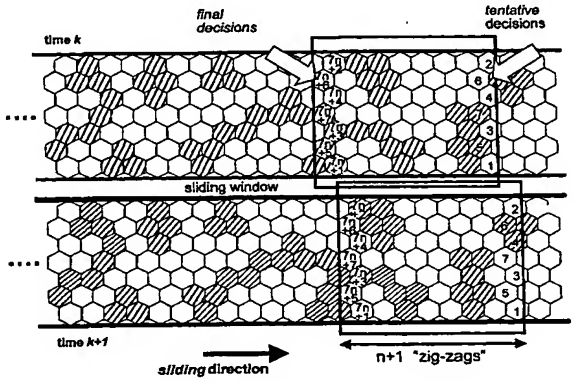
(54) Title: BIT DETECTION METHOD AND DEVICE



(57) Abstract: The present invention relates to a bit detection method for detecting the bit values of bits of a channel data stream stored on a record carrier, wherein the channel data stream resides on an N-dimensional lattice of bits and comprises a plurality of contiguous bit units, each bit unit comprising at least one bit, wherein bit detection for the channel data stream is performed by an iterative procedure, each iteration being carried out on the basis of said bit units, wherein the bit values of the bits of a bit unit are detected by said iterative procedure based on the received HF signal values of the bits of said bit unit. The proposed method comprises an initialisation step, an updating step and an iteration such the method the bits are detected in an iterative but non-recursive way which allow for a high level of parallel processing in the implementation. In the proposed bit detection method, an evaluation criterion is used which is based on the difference between the received HF-signal and a reference HF-signal for each bit of a bit unit consisting of a plurality of bits, where the reference HF-signal depends on the bit value of the bit to be updated, and on its neighbouring bits, for which bit decisions in a previous iteration step are used. Thus, a high capacity, in particular in two-dimensional optical storage, can be achieved which substantially improves the performance of a threshold detector. Hence, the bit detection method according to the invention does not prohibit implementations aimed for high data-rates.

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